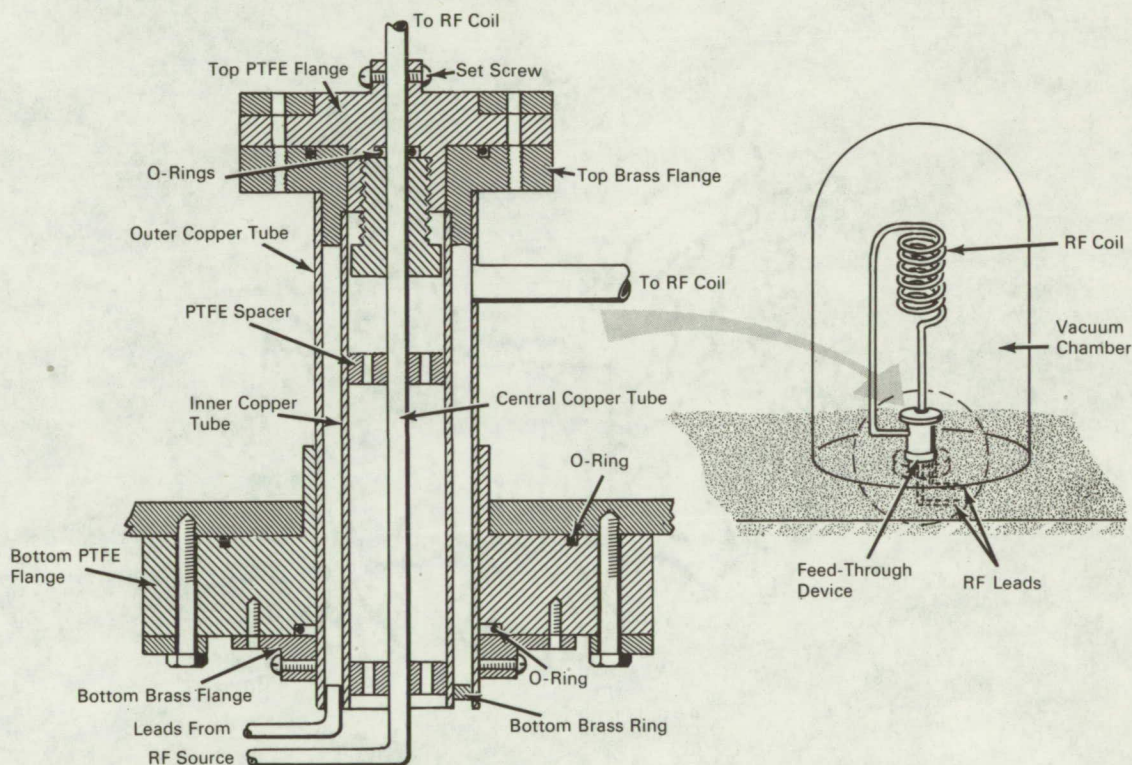


AEC-NASA TECH BRIEF



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Feed-Through Connector Couples RF Power into Vacuum Chamber



The problem:

To design a feed-through device for connecting rf power to an rf coil in a vacuum chamber (at pressures in the range of 10^{-4} to 10^{-5} mm of mercury). The coil and leads must be water cooled and vacuum tight seals provided at the junctions of the feed-through device, leads, and vacuum chamber.

The solution:

A feed-through device incorporating silver soldered copper tubes, PTFE (polytetrafluoroethylene) electrical insulators, and O-ring vacuum seals.

How it's done:

The basic component is an annular cylindrical cavity formed by silver soldering copper tubes (inner and outer copper tubes) to brass end pieces (top brass flange, bottom brass flange, and bottom brass ring). The top PTFE flange, vacuum sealed by O-rings, supports and electrically insulates the central tubular conductor, which is secured to the PTFE flange by set screws. The device protrudes into the vacuum chamber and is electrically insulated from it by the bottom PTFE flange, which is fitted with O-rings for

(continued overleaf)

vacuum tight sealing. Water or other appropriate fluid can be circulated through the tubular conductors for cooling the device.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion
Office

U.S. Atomic Energy Commission
Washington, D.C. 20545

Reference: B67-10027

Patent status:

No patent action is contemplated by AEC or NASA.

Source: G. L. Grandy
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